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BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
FOREST INSECT INVESTIGATIONS

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TITLE

FOREST INSECT SURVEY EASTERN PLUMAS AREA, PLUMAS NATIONAL FOREST, CALIFORNIA AND ADJACENT PRIVATE TIMBERLANDS SEASON OF 1948

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Berkeley 4, California

SUBJECT—

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U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
FOREST INSECT INVESTIGATIONS

FOREST INSECT SURVEY
EASTERN PLUMAS AREA, PLUMAS NATIONAL FOREST, CALIFORNIA,
AND ADJACENT PRIVATE TIMBERLANDS
SEASON OF 1945

Approved by:

_____
Entomologist, in Charge

Submitted by:

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Entomologist

Forest Insect Laboratory
29 Forestry Bldg., U. C.
Berkeley 4, California

FOREST INSECT SURVEY

EASTERN PLUMAS AREA, PLUMAS NATIONAL FOREST, CALIFORNIA,

AND ADJACENT PRIVATE TIMBERLANDS

SEASON OF 1948

FIELD EXAMINATION

Personnel: Dale C. Prentice and H. Parker Spalding, Forest Insect Laboratory, Bureau of Entomology and Plant Quarantine, 29 Forestry Building, University of California, Berkeley 4, California.

Date: August 31, 1948 to September 2, 1948.

Methods: Spotting of infested trees on established roadside sample plots and reconnaissance in areas not sampled by plot measurements.

AREA EXAMINED

The annual inventory of insect-caused loss during 1948 was limited to the Eastern Plumas Area of the Plumas National Forest where the appraisal of infestations could be related to the known pine stand structure.

CHARACTER OF 1947 AND 1948 BARK BEETLE INFESTATIONS

Timber drain resulting from attacks of tree-killing bark beetles occurred over all of the Eastern Plumas Area and adjacent private timberlands. Infested trees were of a scattered nature and occurred primarily in virgin stands. Currently, insect damage is at a low endemic level in all areas.

INSECT DAMAGE ON SAMPLE PLOTS IN 1947

The number of trees and board-foot volume of ponderosa and Jeffrey pine timber killed by bark beetles during 1947 on the several plots used for sampling loss conditions in the Eastern Plumas Area is given in Table 1. The table indicates generally low infestations on all plots except in the Thompson Creek unit. Losses noted on other portions of this reporting unit indicate that the single plot measurement is above the average for this unit as a whole.

In previous years, a majority of the total drain in timber has resulted from attacks by the Jeffrey pine beetle. Currently, the Jeffrey pine beetle infestation is low, and loss caused by the western pine beetle is contributing to the greater portion of the timber drain.

ESTIMATED BARK BEETLE DAMAGE IN PINE STANDS DURING 1947

An expansion of the measured per-acre loss on sample plots to the virgin pine acreage remaining in the area indicates that approximately 2½ million board feet of ponderosa and Jeffrey pine was killed by bark beetles during 1947. The distribution of this estimated loss on the several entomological reporting units is given in Table 2. The total loss during 1947 represents only 0.20 percent of the total merchantable green pine volume. This rate of loss is exceptionally low for east-side pine stands, and in this case, the drain is replaced entirely by increment.

BARK BEETLE DAMAGE IN 1948

A complete record of loss for 1948 will not be available until an inventory is made of each infested tree on the respective sample plots again during 1949. However, partial records obtained thus far indicate continued low endemic loss for all areas.

CURRENT BARK BEETLE DAMAGE IN RESERVE STANDS

No attempt is made to inventory and measure insect-caused mortality in the cutover reserve stands unless particular problems warrant such intensive examination. Estimates of loss for general areas are made only by reconnaissance from vantage lookout points. No serious damage to reserve stands as a result of insect pests was noted during the course of the current survey.

During 1941 a sale of government-owned timber on approximately 3,000 acres in the Dixie Valley Unit was made to the Clover Valley Lumber Company at Loyaltown, California, under a sales contract which provided for the selective removal of all trees then currently of high risk to attack by bark beetles. This area is composed of a mixture of ponderosa and Jeffrey pine, and this sale was the first large-scale attempt to control bark beetle infestations through sanitation-salvage logging in a mixed-pine type. Subsequent to cutting, a series of seven plots totaling 273 acres were established in the control area in order to determine the effectiveness of this selective cutting for beetle control purposes. An annual inventory has been made of loss which occurred subsequent to cutting, and it is of interest now, after seven years, to compare the average annual rate of loss in this cut area to other surrounding uncut stands. This comparison is given in Table 3.

As shown in Table 3, following, the cumulative loss in the area selectively cut by sanitation-salvage methods has amounted to 143 board feet per acre during the seven years since cutting, or an average annual loss of approximately 20 board feet per acre per year. Compared to this is a total loss of 414 board feet per acre in uncut stands, an average of nearly 60 board feet per acre per year. The difference in loss for the period represents the benefits in control obtained through cutting, an average of 65.5 percent less loss on the area selectively cut.

INSECT CONTROL RECOMMENDATIONS

Since 1937, the policy in the annual sale of public timber in the Eastern Plumas Area has been to project cutting into areas where the likelihood of beetle-caused loss was high, and to reserve for later cutting those areas where potential loss as a result of beetle attack was low. Inasmuch as a majority of the timbered lands in this Area are federally owned, most all of the cutting during the past 12 years has been in areas of high beetle hazard. The current rate of low loss is a reflection of the benefits obtained from this policy of cutting. It is urged that, wherever possible, future cuttings should be projected into the remaining areas of high beetle hazard in order to further reduce beetle-caused loss.

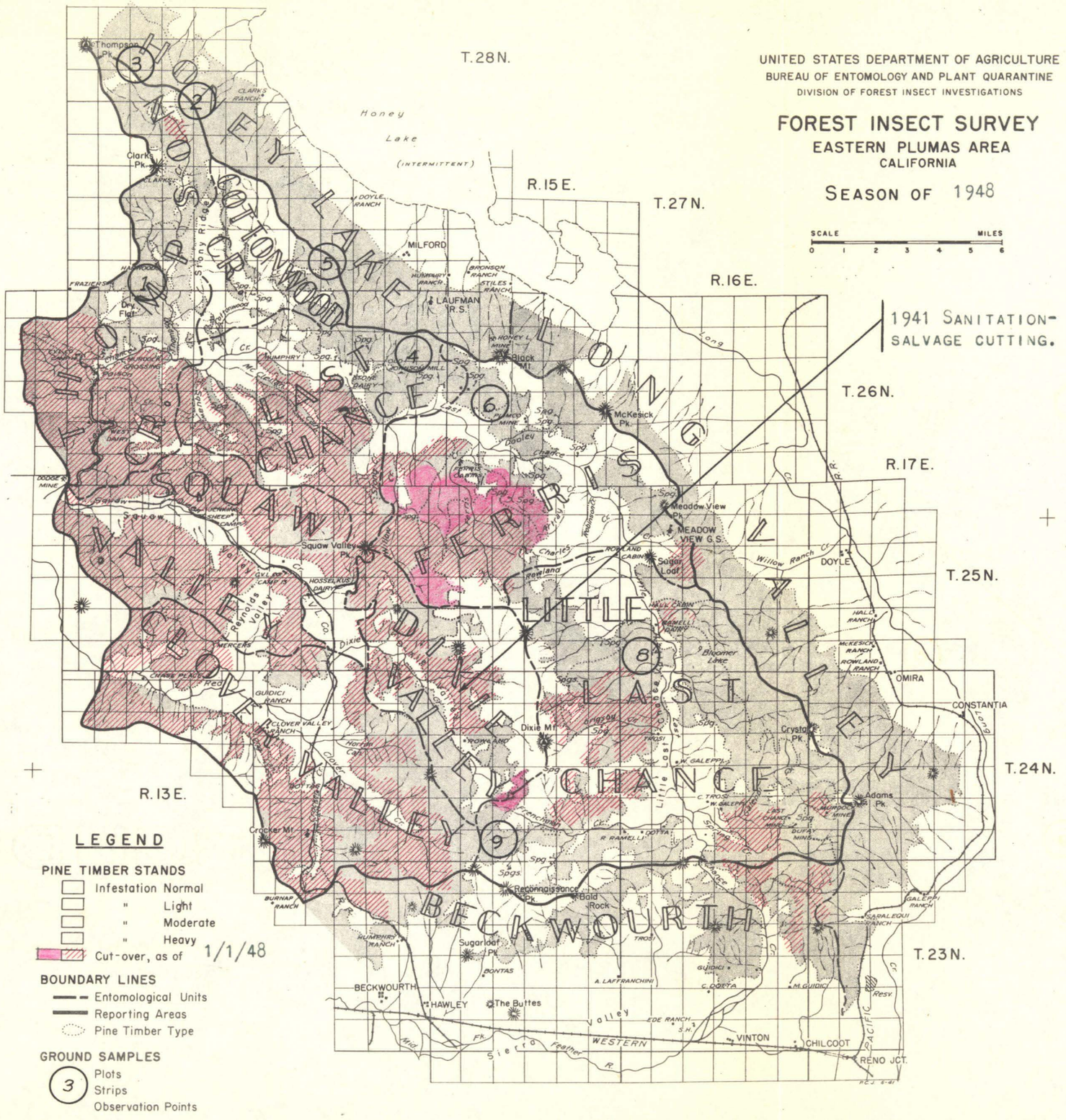
Table 1.---Pine Timber Killed By Bark Beetles On Virgin Sample Plots, Eastern Plumas Area, Plumas National Forest, California.

ENTOMOLOGICAL UNIT	RD STRIP NO.	TIMBERED ACRES	HAZARD RATING	PINE STAND		TIMBER KILLED - 1947			
				Tree Spp.	Volume M.B.M.	No. of Trees	Volume B.M.	Volume Per Acre	% of Stand
Thompson Creek	RD-1	160	II-III	PP	3,660	11	23,900	149.4	0.65
				JP	910	None	None	None	None
				Total	4,570	11	23,900	149.4	0.52
	RD-2	160	II	PP	640	None	None	None	None
				JP	2,610	4	2,460	15.4	0.09
				Total	3,250	4	2,460	15.4	0.08
Cottonwood Creek	RD-5	160	III	PP	1,880	2	1,040	6.5	0.06
				JP	1,220	4	6,030	37.7	0.49
				Total	3,100	6	7,070	44.2	0.23
Last Chance	RD-4	160	III	PP	2,310	1	50	0.3	0.01
				JP	1,450	None	None	None	None
				Total	3,760	1	50	0.3	0.01
Ferris	RD-6	80	IV	PP	380	None	None	None	None
				JP	450	2	1,680	21.0	0.37
				Total	830	2	1,680	21.0	0.20
Honey Lake	RD-3	40	II	PP	-	None	None	None	None
				JP	820	2	180	4.5	0.02
				Total	820	2	180	4.5	0.02
TOTALS FOR EASTERN PLUMAS AREA		760		PP	8,870	14	24,990	32.9	0.28
				JP	7,460	12	10,350	13.6	0.14
				Total	16,330	26	35,340	46.5	0.22

Table 2.--Virgin Pine Timber Killed by Bark Beetles - Eastern Plumas Area, Plumas National Forest, California, and Adjacent Private Lands.

Season of 1947

Entomological Unit	Pine type acreage as of 1/1/48: Virgin	Cutover	Total	Virgin pine stand as of 1/1/48:	Tree Dop.	Volume M.B.M.	Pine timber killed in 1947: No. of Trees	Volume M.B.M.	Volume Per Acre	% Stand
Thompson Creek				PP	120,977	384	819	7.7	0.68	
				JP	123,393	142	84	7.7	0.07	
	10,960	12,330	23,290	Total	244,370	526	903	82.4	0.37	
Cottonwood Creek				PP	9,850	42	21	6.5	0.23	
				JP	28,420	80	121	37.7	0.43	
	3,200		3,200	Total	37,470	122	142	44.2	0.38	
Last Chance				PP	51,474	66	121	16.5	0.24	
				JP	66,988	59	46	6.3	0.07	
	7,360	9,120	16,480	Total	118,462	125	167	22.8	0.14	
Squaw Valley				PP	2,825	11	19	18.3	0.67	
				JP	11,144	8	8	7.5	0.07	
	1,050	17,280	18,330	Total	13,969	19	27	25.8	0.19	
Ferris				PP	14,138	40	2	0.5	0.01	
				JP	37,961	155	129	31.5	0.34	
	4,090	7,650	11,740	Total	52,099	195	131	32.0	0.25	
Little Last Chance				PP	21,690	108	202	14.9	0.93	
				JP	154,427	95	84	6.2	0.05	
	13,590	14,360	27,950	Total	176,117	203	286	21.1	0.16	
Dixie Valley				PP	[illegible]	85	155	32.9	0.54	
				JP	53,060	71	64	13.6	0.12	
	4,710	6,480	11,190	Total	81,362	156	219	46.5	0.27	
Clover Valley				PP	6,425	56	103	16.5	1.60	
				JP	51,796	59	39	6.3	0.08	
	6,240	18,890	25,130	Total	58,221	106	142	22.8	0.24	
Honey Lake				PP	108,100	0	0	0.0	0.00	
				JP	181,750	95	86	4.5	0.05	
	19,020		19,020	Total	289,850	95	86	4.5	0.03	
Long Valley				PP	75,476	0	0	0.0	0.00	
				JP	57,698	160	145	6.8	0.25	
	21,330	690	22,020	Total	133,174	160	145	6.8	0.11	
Beckwourth				PP	9,032	76	150	15.6	1.66	
				JP	31,935	67	62	6.5	0.19	
	9,010	3,270	12,280	Total	40,967	143	212	22.1	0.52	
TOTAL FOR EAST PLUMAS AREA				PP	447,759	868	1,992	15.8	0.36	
				JP	798,572	982	868	6.6	0.11	
	101,110	90,050	191,160	PP+JP	1,246,331	1,850	2,860	24.3	0.20	


UNITED STATES DEPARTMENT OF AGRICULTURE
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DIVISION OF FOREST INSECT INVESTIGATIONS
FOREST INSECT SURVEY
EASTERN PLUMAS AREA
CALIFORNIA
SEASON OF 1948
SCALE
MILES
0 1 2 3 4 5 6
1941 SANITATION-SALVAGE CUTTING.
T.28N.
T.27N.
T.26N.
T.25N.
T.24N.
T.23N.
R.13E.
R.15E.
R.16E.
R.17E.
HOPE VALLEY
LAKE ALMANOR
LONG VALLEY
SQUAW VALLEY
MOUNTAIN MEADOWS
CLOVER VALLEY
INDIAN VALLEY
LITTLE LAST CHANCE
BECKWOURTH
Honey Lake (INTERMITTENT)
Thompson Pk.
Clarks Pk.
Stony Ridge
Cottonwood Cr.
MILFORD
LAUFMAN R.S.
Block Mt.
McKesick Pk.
Meadow View Pk.
MEADOW VIEW G.S.
Squaw Valley Pk.
Sugar Loaf
DOYLE
Willow Ranch Cr.
Dixie Mt.
Crystal Pk.
Adams Pk.
OMIRA
CONSTANTIA
Crocker Mt.
Reconnaissance Pk.
Bald Rock
Sugarloaf Pk.
BECKWOURTH
HAWLEY
The Buttes
VINTON
CHILCOOT
RENO JCT.
Western Pacific R.R.
Sierra Valley
Mid. Fk. Feather R.
LEGEND
PINE TIMBER STANDS
Infestation Normal
" Light
" Moderate
" Heavy
Cut-over, as of 1/1/48
BOUNDARY LINES
Entomological Units
Reporting Areas
Pine Timber Type
GROUND SAMPLES
3 Plots
Strips
Observation Points

Table 3.--Comparison of Average Annual Loss on Areas Cut by Sanitation-Salvage Logging and Virgin Areas - Western Plumas Area, Plumas National Forest, California.

Year of Loss	Tree Spp.	Virgin Stands: Acres in Sample	No. of Trees	Volume B.M.	Volume Per Acre	Sanitation-Salvage Cut Area: Acres in Sample	No. of Trees	Volume B.M.	Volume Per Acre
			INSECT-CAUSED MORTALITY						
1941	PP	1,295	21	15,500	12.0	273	0	0	0.0
	JP		106	158,180	122.1		2	2,860	10.4
	Total		127	173,680	134.1		2	2,860	10.4
1942	PP	1,295	23	42,550	32.9	273	2	670	2.5
	JP		74	109,800	84.8		11	8,380	30.7
	Total		97	152,350	117.7		13	9,050	33.2
1943	PP	1,023	9	6,970	6.8	273	1	50	0.2
	JP		15	19,890	19.4		5	1,820	6.7
	Total		24	26,860	26.2		6	1,820	6.9
1944	PP	1,003	1	50	0.1	273	1	40	0.1
	JP		14	10,620	10.6		3	380	1.4
	Total		15	10,670	10.7		4	420	1.5
1945	PP	1,003	14	22,760	22.7	273	1	100	0.4
	JP		13	8,070	8.0		9	13,890	50.9
	Total		27	30,830	30.7		10	13,990	51.3
1946	PP	1,003	10	9,600	9.6	273	1	660	2.4
	JP		18	27,160	27.1		2	5,020	18.4
	Total		28	36,760	36.7		3	5,680	20.8
1947	PP	763	16	33,690	44.1	273	2	1,940	7.1
	JP		12	10,350	13.6		2	3,120	11.4
	Total		28	44,040	57.7		4	5,060	18.5
CUMULATIVE SEVEN-YEAR TOTAL					413.6				142.6